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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/692,737	10/27/2003	Keisuke Endo	1982-0205P	9716

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EXAMINER	
PHAM, HAI CHI	

ART UNIT	PAPER NUMBER
2861	

DATE MAILED: 04/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/692,737	ENDO ET AL.	
	Examiner	Art Unit	
	Hai C. Pham	2861	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 February 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10 and 21-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,4,7 and 21-33* is/are rejected.

7)☒ Claim(s) *2,5,6 and 8-10* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

FINAL REJECTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1, 4, 21 and 32-33 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 4 and 7 of U.S. Patent No. 6,908,728. Although the conflicting claims are not identical, they are not patentably distinct from each other because claim 4 of the aforementioned U.S. Patent discloses the following limitations recited in claims 1 and 21 of the current Application although using slightly different claimed terminologies and further suggests that the laser is a laser oscillator by reciting the laser having an **oscillation** wavelength being set from 9.2 μm to 9.8 μm (col. 51, lines 7-8). The followings are the comparison chart

between the limitations as recited in claims 1 and 21 of the current Application and that of claim 4 of the above-mentioned U.S. Patent:

- starting illumination of a laser beam from a laser **oscillator** onto a light-photosensitive heat-developing photosensitive material having a surface layer including an emulsion layer is formed on a surface of a base layer; and forming a cavity at an interior of the surface layer by energy of the laser beam (i.e., *supplying a photosensitive material comprising a base layer having formed on a surface thereof an emulsion layer; irradiating a laser beam onto the emulsion layer to thereby generate air bubbles inside the emulsion layer*);
- forming a convex portion as a dot on a surface of the light-photosensitive heat-developing photosensitive material by completing illumination of the laser beam at a point in time when a portion illuminated by the laser beam on the surface layer is deformed into a convex shape by a cavity formed in an interior portion of the surface layer (i.e., *stopping the irradiation of the laser beam at a point in time when the emulsion layer has become convex due to the generation of the air bubbles*);
- forming a predetermined marking pattern by the dot or an arrangement of the dots (i.e., *whereby a convex dot pattern including plural minute air bubbles inside the emulsion layer is formed on the photosensitive material*).
- starting illumination of a laser beam from a laser oscillator whose ***oscillation wavelength is in a 9 μm band*** onto a light-photosensitive heat-developing

photosensitive material having a surface layer including an emulsion layer is formed on a surface of a base layer (i.e., *wherein an **oscillation** wavelength of the laser beam is set to be from 9.2 μm to 9.8 μm*).

With regard to claims 32 and 33 of the current Application, claim 4 of the U.S. Patent 6,908,728 refers to the laser beam in singular and thus indicates that the laser beam is emitted from a *single* laser.

With regard to claims 4 and 21 of the current Application, claim 7 of the U.S. Patent 6,908,728 discloses the following limitation:

- controlling an oscillation output of the laser and an illumination time of the laser beam (i.e., *using the laser oscillator to irradiate the laser beam in a spot onto the emulsion layer to impart a predetermined amount of energy to the photosensitive material, wherein numerous air bubbles are generated inside the emulsion layer by the predetermined amount of energy being imparted within a predetermined time, to thereby form visible dots*).

Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to set the oscillation output and the illumination time of the laser beam at the proper level as taught at claim 7 of the aforementioned U.S. Patent so as to form the visible dot pattern without bursting the cavity created at the interior of the surface layer of the photosensitive material.

3. Claims 3, 7, 22-23 and 27-28 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 4 of U.S. Patent No. 6,908,728 in view of Nakamura et al. (U.S. 5,940,115).

Claim 4 of the U.S. Patent No. 6,908,728 recites all the basic limitations of the claimed invention except for the oscillation output being set at 100 W, the illumination time of laser light source being set in the range of 25 μs to 35 μs (claim 7), the use of an X-ray film (claim 3), and the beam deflector (claims 22-23, 27-28).

However, it is old and well known in the recording/marking art that the selection of a laser light source parameters is necessary to obtain the best desirable result in a particular application and when dealing with a particular material as evidenced by Nakamura et al., an acknowledged prior art, which discloses a method and apparatus for irradiating a photosensitive material that has an emulsion layer (61) with a laser beam to form dots having convex (or concave) shape where the dot arrangement forms a predetermined marking pattern (col. 8, line 64 to col. 9, line 17) (Figs. 1 and 4), and wherein the laser beam is emitted by a set of laser tubes (20a-20g), whose operating parameters such as output energy and illumination time are controlled with respect to sensitivity of the photosensitive material, e.g., an X-ray film (7), the density level of the formed dot pattern, and the visibility of the dot pattern without occurrence of fog and/or combustion on the surface of the film so as to obtain a good image quality (see Tables 1-7). Nakamura et al. further teaches a polygon mirror (4, Fig. 5) being used as a beam deflector for directing the scanned laser beam onto the photosensitive material.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device as claimed in claim 4 of the U.S. Patent No. 6,908,728 with the aforementioned teachings of Nakamura et al. The motivation for doing so would have been to obtain a good image quality with occurrence of fog and/or combustion on the surface of the film as suggested by Nakamura et al.

On the other hand, Nakamura et al. teaches using a CO_2 gas laser as the laser tube sources with a peak wavelength of 10.6 μm, an output of 40W and an irradiation time depending on the output or energy density of the laser being used to form a dot of about 200 μm diameter. Although Nakamura et al. does not teach the claimed limitations related to the laser beam irradiation condition, Nakamura et al. does suggest that the laser output should be carefully selected, e.g., laser beam irradiation time period, energy density, without causing deformation or deterioration on the image surface of the X-ray film. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to select the parameters of the laser beam as claimed, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

4. Claims 24-26 and 29-31 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 4 of U.S. Patent No. 6,908,728 in view of Nakamura et al., as applied to claims 1 and 21 above, and further in view of Smart (U.S. 6,339,604).

Claim 4 of the U.S. Patent No. 6,908,728, as modified, recites all the basic limitations of the claimed invention except for the acousto-optic device and the laser beam cooling damper.

Smart discloses a method and apparatus for marking image pattern on a workpiece using a laser beam, wherein an acousto-optic modulator (AOM 26) is used to deflect the primary laser beam onto the workpiece and then is switched off so as that the unwanted secondary deflected laser beam is dumped onto a heat sink (28) (Figs. 2-3) (col. 6, lines 29-56).

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the device as claimed in claim 4 of the U.S. Patent No. 6,908,728 by incorporating the AOM deflector and the beam dump as taught by Smart. The motivation for doing so would have been to avoid unwanted laser beam to expose the photosensitive material.

Allowable Subject Matter

5. Claims 2, 5-6, 8-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments filed 02/15/06 have been fully considered but they are not persuasive.

Applicants argued that "[T]he cavity as recited in claim 1 [or 21] cannot be equated with the air bubbles as recited in the '728 patent." However, the current Specification explicitly indicates at pages 42-43, bridging paragraph, that:

> *"At the X-ray film 112, a large number of minute air bubbles are generated in the process in which melting and transpiration arise at the emulsion layer 116 due to the illumination of the laser beam LB."*

which clearly equates the cavity with the air bubbles.

Applicants further argued that "claim 7 of the '728 patent recites, "supplying a photosensitive material comprising a support having on at least one side thereof an emulsion layer," and that "[N]either claim 1 nor claim 4 of the present application claims such an element." The examiner respectfully disagrees since claim 1 and thus claim 1/4 recites "photosensitive material having a surface layer including an emulsion layer is formed on a surface of a base layer;" wherein the base layer is essentially a support layer on which the emulsion layer is formed.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Hai Chi Pham

HAI PHAM
PRIMARY EXAMINER

April 24, 2006